

wherein the aerosolized nucleic acid composition comprises at least one oligonucleotide wherein the sugar moiety of at least one nucleoside unit of said oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said oligonucleotide is not a phosphodiester or a phosphorothioate linkage].

39. (Once Amended) The method of claim 38 wherein said nucleoside unit is a 2'-O-substituted nucleoside unit.

45. (Once Amended) The method of claim 37 wherein said antisense nucleic acid therapeutic or diagnostic composition is in aqueous media.

46. (Once Amended) The method of claim 37 wherein said antisense nucleic acid therapeutic or diagnostic composition is in sterilized, pyrogen free water.

47. (Once Amended) The method of claim 37 wherein said antisense nucleic acid therapeutic or diagnostic composition is in saline solution.

48. (Once Amended) The method of claim 37 wherein said antisense nucleic acid therapeutic or diagnostic composition is a powder.

A4
49. (Once Amended) The method of claim 37 wherein [the] said antisense nucleic acid therapeutic or diagnostic composition [contains] comprises more than one oligonucleotide.

51. (Once Amended) The method of claim 37 wherein [the] said antisense nucleic acid therapeutic or diagnostic composition is an aerosolized solution that consists essentially of an antisense oligonucleotide in saline solution.

52. (Once Amended) A method of treating an animal having or suspected of having a disease or disorder that is treatable with [one or more nucleic acids] an antisense nucleic acid composition comprising:

7/15.
administering a therapeutically effective amount of an aerosolized antisense nucleic acid composition to the lung of the animal[,];

wherein the aerosolized antisense nucleic acid composition comprises at least one antisense oligonucleotide ;

wherein the sugar moiety of at least one nucleoside unit of said [one] antisense oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said [one] antisense oligonucleotide is not a phosphodiester or a phosphorothioate linkage;

wherein said antisense oligonucleotide is not directed to an A₁ or A₃ adenosine receptor and is not contained in an expression vector.

53. (Once Amended) A method of investigating the role of a gene or gene product in an animal other than a human comprising:

administering a therapeutically effective amount of an aerosolized antisense nucleic acid composition to the lung of the animal[,];

wherein the aerosolized antisense nucleic acid composition comprises at least one antisense oligonucleotide;

wherein the sugar moiety of at least one nucleoside unit of said antisense oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said antisense oligonucleotide is not a phosphodiester or a phosphorothioate linkage;

wherein said antisense oligonucleotide is not directed to an A₁ or A₃ adenosine receptor and is not contained in an expression vector.

54. (Once Amended) A method for delivering an antisense nucleic acid [oligonucleotide] therapeutic or diagnostic compound to the lung of an animal comprising applying to said lung a pharmaceutical composition [according to claim 1] comprising at least one antisense oligonucleotide wherein the sugar moiety of at least nucleoside unit of said antisense oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said antisense oligonucleotide is not a phosphodiester or a phosphorothioate linkage;

wherein said antisense oligonucleotide is not directed to an A₁ or A₃ adenosine receptor and is not contained in an expression vector.

58. (Once Amended) The method of claim 37 wherein the antisense nucleic acid therapeutic composition is an aerosolized solution that consists essentially of an antisense oligonucleotide in buffer solution.

59. (Once Amended) A method of modulating the expression of a gene in an animal comprising administering to said animal [the pharmaceutical] an antisense nucleic acid composition [of claim 1] comprising at least one antisense oligonucleotide wherein the sugar moiety of at least nucleoside unit of said antisense oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said antisense oligonucleotide is not a phosphodiester or a phosphorothioate linkage, wherein said antisense oligonucleotide is not directed to an A₁ or A₃ adenosine receptor and is not contained in an expression vector.

61. (Once Amended) A medical device for pulmonary delivery of an aerosol comprising [a pharmaceutical] an antisense nucleic acid composition [in accordance with claim 1] for pulmonary delivery of an antisense oligonucleotide comprising at least one antisense oligonucleotide wherein the sugar moiety of at least nucleoside unit of said antisense oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said antisense oligonucleotide is not a phosphodiester or a phosphorothioate linkage, wherein said antisense oligonucleotide is not directed to an A₁ or A₃ adenosine receptor and is not contained in an expression vector.

64. (New) A method of treating an animal having or suspected of having a disease or disorder that is treatable with one or more antisense oligonucleotides comprising:
administering a therapeutically effective amount of one or more aerosolized oligonucleotides to the lung of the animal,

wherein one or more of the aerosolized is an antisense oligonucleotide ;

4/8
wherein the sugar moiety of at least one nucleoside unit of said antisense oligonucleotide is not a 2'-deoxyribofuranosyl sugar moiety or at least one internucleotide linkage within said antisense oligonucleotide is not a phosphodiester or a phosphorothioate linkage;

wherein said antisense oligonucleotide is not directed to an A₁ or A₃ adenosine receptor and is not contained in an expression vector.